

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) A data transfer driver for a data storage device including recording media having one or more recording surfaces, one or more data transducer heads positionable relative to the recording surfaces by a head position actuator structure operating within a head position servo loop, the data transfer driver comprising:

5 one or more head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations;

 a mode controller electrically connected to each head interface, for controlling the operation of each head interface for selectively reading data from at least
10 one recording surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head.

2. (original) The data transfer driver of claim 1 wherein the mode controller further controls the operation of each head interface for selectively: writing data to at least one recording surface via at least one transducer head, and/or reading data from at least one recording surface via at least one transducer head.

3. (original) The data transfer driver of claim 1 wherein the mode controller controls the operation of the head interfaces based on configuration information, wherein the configuration information includes data transfer mode and transducer head selection information.

4. (currently amended) The data transfer driver of claim 3 wherein the configuration information includes:

read mode, wherein the mode controller controls the operation of the head interfaces for selectively reading data via at least one transducer head;

5 write mode, wherein the mode controller controls the operation of the head interfaces for selectively writing data via at least one transducer head;

servowrite mode, wherein the mode controller controls the operation of the head interfaces for ~~to~~ selectively writing data via a plurality of transducer heads; and

10 read-while-write (RWW) mode, wherein the mode controller controls the operation of the head interfaces for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head.

5. (original) The data transfer driver of claim 1 further comprising a control interface connected to the mode controller, the control interface for receiving configuration information wherein the mode controller controls the operation of the head interfaces based on the configuration information.

6. (original) The data transfer driver of claim 1 wherein each head interface comprises:

a read circuit for controlling the corresponding transducer head to read data from a recording surface, and

5 a write circuit for controlling the corresponding transducer head to write data to a recording surface.

7. (original) The data transfer driver of claim 1 wherein the data storage device includes a plurality of data transducer heads, the data transfer driver further comprising a plurality of head interfaces corresponding to the data transducer heads, each head interface being electrically connected to a corresponding transducer head for controlling that transducer head for data read and/or write operations; and

5 wherein the mode controller is further electrically connected to the plurality of the head interfaces, for controlling the operation of the head interfaces based on configuration information for selectively: (i) writing data to one or more recording surfaces, (ii) reading data from at least one recording surface the data disk, and/or (iii)
10 reading data from at least one recording surface while writing data to one or more recording surfaces.

8. (original) The data transfer driver of claim 7 wherein the configuration information includes transducer head selection and data transfer mode information.

9. (original) The data transfer driver of claim 7 wherein each head interface comprises:

a read circuit for controlling the corresponding transducer head to read data from the data disk, and

5 a write circuit for controlling the corresponding transducer head to write data to the data disk.

10. (original) The data transfer driver of claim 7 wherein the mode controller controls the operation of the head interfaces based on the configuration information for writing data to a recording surface via a transducer head while reading data from the recording surface via that same transducer head.

11. (original) The data transfer driver of claim 7 wherein the mode controller controls the operation of the head interfaces based on the configuration information for writing data to at least one recording surface via at least one transducer head while reading data from at least one recording surface via at least another transducer head.

12. (original) The data transfer driver of claim 1, wherein the data storage device comprises a disk drive and the recording media comprises one or more magnetic data disks.

13. (withdrawn) A method for self-servo writing a disk drive comprising the steps of:

(a) transferring a reference pattern onto at least one recording surface of a reference disk, wherein the transferred reference pattern comprises servo clock information providing transducer head circumferential relative position information, and
5 servo position information providing transducer head radial relative position information;

(b) assembling the disk drive including the steps of installing the reference disk and one or more other data disks into the disk drive and enclosing the disks and data transducers within a housing, each data disk including at least one recording
10 surface; and

(c) reading the transferred reference pattern from the reference disk via a transducer head and using the read servo clock and the servo position information to position and maintain one or more transducer heads on one or more said data disk recording surfaces while writing final servo patterns onto said one or more data disk
15 recording surfaces.

14. (withdrawn) The method of claim 13, wherein step (c) further comprises the steps of generating the final servo patterns for writing to the disk surfaces.

15. (withdrawn) The method of claim 13 further comprising the steps of:

including a preamplifier in the disk drive for selectively reading data from at least one recording surface using at least transducer head while selectively writing data to one or more recording surfaces using one or more transducer heads.

16. (withdrawn) The method of claim 15 wherein step (c) further comprises the steps of:

using the preamplifier for reading the transferred reference pattern from the reference disk via a transducer head while writing final servo patterns onto said one or more data disk recording surfaces using one or more transducer heads.

17. (withdrawn) The method of claim 16 further comprising the steps of:

including a drive controller in the disk drive to control the preamplifier for selectively reading the reference pattern from the reference disk via a transducer head and using the read servo clock and the servo position information to position and maintain one or more transducer heads on one or more said data disk recording surfaces, while writing final servo patterns onto said one or more data disk recording surfaces.

18. (withdrawn) The method of claim 15 wherein the preamplifier comprises:

a control interface for receiving configuration information to selectively transfer data to and/or from at least a recording surface;

a head interface for each transducer head wherein each head interface is electrically connected to a corresponding transducer head for controlling the transducer head for data read and/or write operations; and

a mode controller electrically connected to the control interface and to the head interface, for controlling the operation of the head interfaces based on the configuration information for selectively: (i) reading data from at least a recording surface using at least a transducer head, (ii) writing data to at least recording surface

using at least a transducer head, and/or (iii) writing data to a recording surface using at least a transducer head while reading data from a recording surface using at least a transducer head.

19. (withdrawn) The method of claim 16 wherein the configuration information includes data transfer mode, and transducer head selection information.

20. (withdrawn) The method of claim 17 wherein the configuration information includes:

read mode, wherein the mode controller controls the operation of the head interfaces for selectively reading data via at least one transducer head;

5 write mode, wherein the mode controller controls the operation of the head interfaces for selectively writing data via at least one transducer head;

servowrite mode, wherein the mode controller controls the operation of the head interfaces to selectively writing data via a plurality of transducer heads; and

10 read-while-write (RWW) mode, wherein the mode controller controls the operation of the head interfaces for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head.

21. (withdrawn) The method of claim 16 wherein each head interface comprises:

a read circuit for controlling the corresponding transducer head to read data from a recording surface, and

a write circuit for controlling the corresponding transducer head to write
5 data to a recording surface.

22. (withdrawn) The method of claim 16 wherein the mode controller controls the operation of the head interfaces based on the configuration information for writing data to a recording surface via at least one transducer head while reading data from that recording surface that same transducer head.

23. (withdrawn) In a disk drive including one or more data disks having recording surfaces, one or more transducers, a reference disk having a reference pattern on a recording surface thereof, the reference pattern comprising servo clock information providing transducer head circumferential relative position information, wherein the
5 heads are positionable relative to the recording surfaces by a head position actuator structure operating within a head position servo loop, a method for self-servo writing including the steps of:

reading the transferred reference pattern from the reference disk via a transducer head and using the read servo clock and the servo position information to
10 position and maintain one or more transducer heads on one or more said data disk recording surfaces while writing final servo patterns onto said one or more data disk recording surfaces.

24. (withdrawn) The method of claim 23 wherein the disk drive further includes a preamplifier in the disk drive for selectively reading data from at least one recording

surface using at least transducer head while selectively writing data to one or more recording surfaces using one or more transducer heads, the method further comprising the steps of using the preamplifier for reading the reference pattern from the reference disk via a transducer head while writing final servo patterns onto said one or more data disk recording surfaces using one or more transducer heads.

25. (withdrawn) The method of claim 24 further comprising the steps of:
using the read servo clock and the servo position information to position and maintain one or more transducer heads on one or more said data disk recording surfaces, while writing final servo patterns onto said one or more data disk recording surfaces.

26. (withdrawn) The method of claim 25 wherein the preamplifier comprises:
a control interface for receiving configuration information to selectively transfer data to and/or from at least a recording surface;
a head interface for each transducer head wherein each head interface is electrically connected to a corresponding transducer head for controlling the transducer head for data read and/or write operations; and
a mode controller electrically connected to the control interface and to the head interface, for controlling the operation of the head interfaces based on the configuration information for selectively: (i) reading data from at least a recording surface using at least a transducer head, (ii) writing data to at least recording surface using at least a transducer head, and/or (iii) writing data to a recording surface using at

least a transducer head while reading data from a recording surface using at least a transducer head.

27. (withdrawn) The method of claim 26 wherein the configuration information includes data transfer mode, and transducer head selection information.

28. (withdrawn) The method of claim 27 wherein the configuration information includes:

read mode, wherein the mode controller controls the operation of the head interfaces for selectively reading data via at least one transducer head;

5 write mode, wherein the mode controller controls the operation of the head interfaces for selectively writing data via at least one transducer head;

servowrite mode, wherein the mode controller controls the operation of the head interfaces to selectively writing data via a plurality of transducer heads; and

10 read-while-write (RWW) mode, wherein the mode controller controls the operation of the head interfaces for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head.

29. (withdrawn) The method of claim 26 wherein each head interface comprises:

a read circuit for controlling the corresponding transducer head to read data from a recording surface, and

5 a write circuit for controlling the corresponding transducer head to write data to a recording surface.

30. (original) A disk drive comprising:

recording media having one or more recording surfaces,

one or more data transducer heads,

5 a head position actuator structure for positioning the heads relative to the recording surfaces, operating within a head position servo loop;

a preamplifier comprising:

one or more head interfaces, each head interface electrically connected to a transducer head for controlling the transducer head for data read and/or write operations;

10 a mode controller electrically connected to each head interface and responsive to the servo controller, for controlling the operation of each head interface based on configuration information for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head; and

15 a drive controller configured for controlling the head position actuator structure to position the heads relative to the recording surfaces, and for providing the configuration information to the preamplifier for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head.

31. (original) The disk drive of claim 30 wherein the mode controller further controls the operation of each head interface for selectively: writing data to at least one recording surface via at least one transducer head, and/or reading data from at least one recording surface via at least one transducer head.

32. (original) The disk drive of claim 30 wherein the configuration information includes data transfer mode and transducer head selection information.

33. (currently amended) The disk drive of claim 32 wherein the configuration information includes:

read mode, wherein the mode controller controls the operation of the head interfaces for selectively reading data via at least one transducer head;

5 write mode, wherein the mode controller controls the operation of the head interfaces for selectively writing data via at least one transducer head;

servowrite mode, wherein the mode controller controls the operation of the head interfaces for ~~to~~ selectively writing data via a plurality of transducer heads; and

10 read-while-write (RWW) mode, wherein the mode controller controls the operation of the head interfaces for selectively reading data from at least one recording surface via at least one transducer head while writing data to at least one recording surface via at least one transducer head.

34. (original) The disk drive of claim 30 wherein the preamplifier further comprises a control interface connected to the mode controller, the control interface for receiving configuration information from the drive controller wherein the mode controller controls the operation of the head interfaces based on the configuration information.

35. (original) The disk drive of claim 30 wherein each head interface comprises:

a read circuit for controlling the corresponding transducer head to read data from a recording surface, and

5 a write circuit for controlling the corresponding transducer head to write data to a recording surface.

36. (original) The disk drive of claim 30, wherein the mode controller controls the operation of the head interfaces based on the configuration information for writing data to a recording surface via a transducer head while reading data from the recording surface via that same transducer head.

37. (original) The disk drive of claim 30, wherein the recording media includes one or more data disks having recording surfaces, the disk drive further including a reference disk having a reference pattern thereon, wherein the transferred reference pattern comprises servo clock information providing transducer head circumferential
5 relative position information, and servo position information providing transducer head radial relative position information;

wherein the drive controller is further configured for controlling the actuator and the preamplifier in a servo control loop, for reading the reference pattern from the reference disk via a transducer head and using the read servo clock and the servo position information to position and maintain one or more transducer heads on one or more said data disk recording surfaces while writing final servo patterns onto said one or more data disk recording surfaces.

38. (original) The disk drive of claim 37, wherein the drive controller controls the actuator and the preamplifier for:

reading the reference pattern from the reference disk via a transducer head and using the read servo clock and the servo position information to position and

maintain one or more transducer heads on one or more said data disk recording surfaces;

while at the same time generating and writing final servo patterns onto said one or more data disk recording surfaces.

39. (original) The disk drive of claim 37, wherein the drive controller further comprises:

a pattern generator for generating the final servo patterns for writing to the recording surfaces; and

a servo controller for controlling the actuator and the preamplifier in a servo control loop, for reading the reference pattern from the reference disk via a transducer head and using the read servo clock and the servo position information to position and maintain one or more transducer heads on one or more said data disk

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recording surfaces while writing the final servo patterns onto said one or more data disk recording surfaces.

Claim 40 (new): The data transfer driver of claim 1, wherein the mode controller further controls the operation of each head interface for selectively reading data from at least one recording surface via at least one transducer head while simultaneously writing data to at least one recording surface via at least one transducer head.

Claim 41 (new): The disk drive of claim 30, wherein the mode controller further controls the operation of each head interface for selectively reading data from at least one recording surface via at least one transducer head while simultaneously writing data to at least one recording surface via at least one transducer head.